

Remarks

Claims 2-5 and 31-34 are pending in this application. Claim 34 is amended to include all the limitations of canceled Claim 6. Claims 1, 6-30, and 35-38 have been canceled, in this and previous responses to office actions, without prejudice. The Applicants expressly reserve the right to pursue these claims in a continuation and/or divisional application.

The Applicants thank the Examiner for indicating that Claim 6 would be allowable if rewritten in independent form including all of the limitations of the base claim (Claim 34) and if the rejection(s) of the base claim under 35 U.S.C. § 112, [first paragraph] were overcome.

Claim Rejections – 35 U.S.C. § 112

The Examiner has rejected independent claims 24, 31 under 35 U.S.C. § 112, first paragraph as failing to comply with the written description requirement. The Examiner has rejected dependent claims 2-5, 25-30, and 32-33 as being dependent upon a rejected base claim. The Applicants respectfully traverse the Examiner's rejections.

Claim 31

The Examiner states, "As per claims 24 and 31, the Applicant does not teach the use of 'executing a user defined instruction using unaligned data.' . . . Applicant's originally-filed specification is silent with regard to the use of unaligned data by a user-defined instruction. . . . [T]he Applicant has not given the Examiner guidance concerning where support for such a limitation can be found in the originally-filed specification. . . . While the Examiner agrees that support for the term 'unaligned data' does indeed have support in the specification, the limitation of using the unaligned data by a user-defined instruction does not have proper support." (Office Action, p. 4, first paragraph.)

(Emphasis in original.) The Applicants respectfully submit that the Examiner's review of the original specification is incomplete. The originally filed application includes support for Claims 24 and 31 at least in paragraphs 24, 26, 33, 39, 61, 63, 76, and 77.

The specification of the originally filed application teaches that the ISEF executes user defined instructions; unaligned data is stored in registers in the extension adapter; and the stored (unaligned) data is extracted for use in the ISEF by the user defined instructions. Thus, the specification teaches that user defined instructions use unaligned data.

The ISEF executes user defined instructions. Support for this may be found, for example, in paragraphs 24, 26, and 39.

Paragraph 24 of the original specification recites in part, "Because it is programmable, the instruction set of ISEF 130 can be readily configured to include instruction extensions that are tailored to a specific application."

Paragraph 26 recites in part, "Extension adapter 140 in combination with ISEF 130 provides logic that allows users to extend the native instruction set defined by the processor core 120."

Paragraph 39 recites in part, "ISEF 130 and adapter controller 412 allow a user to add new instructions that change with software on different implementations of the same silicon. For example, a user can add specialized instructions to perform video or audio encoding/decoding."

Unaligned data is stored in the extension adapter, for example, in buffer 850. Support may be found, for example, in paragraphs 63, 76, and 77.

Paragraph 63 recites in part, "This methodology gives unaligned semantics, as data can be read from load/store buffer 850 in an unaligned fashion."

Paragraph 76 recites in part, "Load/store buffer 850 of this embodiment comprises two staging buffers GETNEXTBUFF and GETBUFF. . . . The address [in load/store buffer 850] is unaligned, starting at byte five of a 16-byte quadword."

Paragraph 77 recites in part, "Load/store buffer 850 of this embodiment comprises a single staging buffer PUTBUFF. . . . In this example, the desired data [in load/store buffer 850] is unaligned . . ."

Unaligned data stored in the buffer 850 is for use in the ISEF by user defined instructions. Support may be found, for example, in paragraphs 38, 61, and 63.

Paragraph 38 recites in part, "ISEF 130 instructions operate under the control of extension adapter 140 to retrieve stored data from register file 420 to ISEF 130 for use in ISEF 130 computations or other functional execution."

Paragraph 61 recites in part, "Load/store buffer 850 provides buffering functionality, whereby unaligned load/store instructions can extract data in a streaming fashion for use by processor core 120 and/or ISEF 130."

Paragraph 63 recites in part, "This methodology gives unaligned semantics, as data can be read from load/store buffer 850 in an unaligned fashion."

The Applicants have shown where the specification teaches that the ISEF executes user defined instructions; unaligned data is stored in registers in the extension adapter; and the stored (unaligned) data is extracted for use in the ISEF by the user defined instructions. Thus, the Applicants have shown where in the specification the application teaches that user defined instructions use unaligned data.

The Applicants have provided the Examiner with the requested guidance concerning where support for the limitations of Claims 24 and 31 can be found in the originally-filed specification. For at least the above reasons, the Applicants believe they have overcome the Examiner's rejection of Claims 24 and 31 under 35 U.S.C. § 112, first paragraph. The Applicants have canceled Claim 24 in the interest of advancing the application to allowance, rendering the rejection of Claim 24 moot. The Applicants respectfully request the Examiner to withdraw the rejection of Claim 31 under 35 U.S.C. § 112, first paragraph. For at least the above reasons, independent Claim 31 is allowable. Claims 32 and 33 are allowable for at least the reasons discussed with respect to Claim 31 from which they depend.

Claims 32 and 33 stand rejected as being dependent on a rejected base claim. For at least the reasons discussed above with respect to Claim 31 from which they depend, the Applicants believe Claims 32 and 33 are allowable.

The Applicants respectfully request the Examiner to withdraw the rejection of Claims 31- 33 under 35 U.S.C. § 112, first paragraph. As the Examiner has not asserted any additional rejections of Claims 31-33, these claims are allowable.

Claim 34

The Examiner asserts, "As per claim 34, as stated above, Applicant's originally-filed specification does not provide support for the execution of unaligned data sequences. (Office Action, p. 4, third paragraph.) (Emphasis in original.) The Applicants respectfully submit that the Examiner's review of the original specification is incomplete. The originally filed application includes support for Claim 34 at least in paragraphs 24, 26, 31, 33, 38, 39, 61, 63, 76, and 77.

As discussed above, the specification teaches that the ISEF executes user defined instructions; unaligned data is stored in registers in the extension adapter; and the stored data is used in the ISEF by the user defined instructions. Further, the specification also teaches that unaligned data sequences may be stored in registers in the extension adapter. Thus, the specification teaches execution of an unaligned data sequence.

Unaligned data sequences may be stored in buffer 850. Support may be found, for example, in paragraph 63. Paragraph 63 recites in part, “[U]naligned load/store instructions assume sequential loading of multiple words in order to retrieve data from an earlier-loaded word. . . . data can be read from load/store buffer 850 in an unaligned fashion.” (Emphasis added.)

Data sequences may be extracted from the buffer 850 and executed by the ISEF. Support may be found, for example, in paragraph 61. Paragraph 61 recites in part, “Load/store buffer 850 provides buffering functionality, whereby unaligned load/store instructions can extract data in a streaming fashion for use by processor core 120 and/or ISEF 130.” (Emphasis added.)

Use of the data includes execution by the ISEF. Support may be found, for example, in paragraph 38. Paragraph 38 recites in part, “ISEF 130 instructions operate under the control of extension adapter 140 to retrieve stored data from register file 420 to ISEF 130 for use in ISEF 130 computations or other functional execution.” (Emphasis added.)

Thus, the specification teaches execution of user defined instructions; storing unaligned data in registers in the extension adapter; and using stored in the ISEF by the user defined instructions. Further, the specification also teaches storing unaligned data sequences in registers in the extension adapter. Thus, the specification teaches execution of an unaligned data sequence.

The Applicants have provided the Examiner with the requested guidance concerning where support for the limitations of Claim 34 can be found in the originally-filed specification. For at least the above reasons, the Applicants believe they have overcome the Examiner's rejection of Claim 34 under 35 U.S.C. § 112, first paragraph.

Claim Rejections – 35 U.S.C. § 102

The Examiner has rejected Claims 24-30 under 35 U.S.C. § 102(e). The cancellation of these claims by the Applicants has rendered these rejections moot.

Claim Rejections – 35 U.S.C. § 103

The Examiner has rejected Claims 17-20 and 37 under 35 U.S.C. § 103(a). The cancellation of these claims by the Applicants has rendered these rejections moot. The Examiner has rejected Claims 2-5 and 34 under 35 U.S.C. § 103(a) but has indicated that Claim 6 would be allowable if rewritten in independent form. The Applicants have amended Claim 34 to include all the limitations of dependent Claim 6 and has overcome the rejection under 35 U.S.C. § 112. Claim 34 is thus allowable (Claim 6 has been canceled). As Claim 34 is allowable, those claims which depend therefrom are also allowable, thus, Claims 2-5 are now allowable.

Conclusion

The Applicants have overcome rejections of Claims 31-33 under 35 U.S.C. § 112, first paragraph. No further rejections or objections to Claims 31-33 are stated in the Office Action. Thus, Claims 31-33 are allowable.

The Applicants have overcome the rejection of Claim 34 under 35 U.S.C. § 112, first paragraph. The Applicants have amended Claim 34 to include the limitations of Claim 6 which the Examiner indicated includes allowable subject matter. Thus, Claim 34 is allowable.

Claims 2-5 depend from allowable Claim 34. Thus, Claims 2-5 are allowable.

The Applicants have canceled Claims 1, 6-30, and 35-38. Thus, the rejections of these claims are moot.

The Applicants respectfully submit that pending Claims 2-5 and 31-34 are allowable and request that the Examiner issue a Notice of Allowance. The Examiner is invited to contact the Applicants' undersigned representative with any questions concerning the present application.

Respectfully submitted,

Kenneth Mark Williams et al.

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By: _____

Ronald L. Rohde, Reg. No. 50,050
Carr & Ferrell LLP
2200 Geng Road
Palo Alto, California 94303
Phone (650) 812-3400
FAX (650) 812-3444